

REMARKS

1. Amendments to the Specification

The specification has been amended to recite the priority of the present application.

The description of figure 5(b) on page 25, lines 8-23, has been amended to recite SEQ ID NO: 4-14. Support for this amendment is found on page 25, lines 8-23. No new matter has been added.

2. Amendment to the Sequence Listing

Applicants submit that sequences corresponding to figure 5(b) were already listed in the sequence listing. The sequences are SEQ ID NO: 4-14.

3. Amendments to the Claims

Claim 65 is amended to recite a “nucleotide sequences having at least 83% identity with the nucleotide sequence of (a) or (b) wherein said nucleotide sequences encode a polypeptide having LpTFL1-like activity and comprising the amino acid sequence YESP(K/R) in said plant.” Support for the amendment is found in the specification at page 10, line 16 and page 12, paragraph 2.

Claim 66 is amended to conform with Claim 65. Support for the amendment is found in the specification page 10, line 16.

No new matter has been added.

4. Claim Rejections Under 35 U.S.C. §112

4.1 Written Description

The Examiner rejects claims 65-66 and 68-80 as lacking written description. Applicants respectfully traverse.

The Examiner states that the specification discloses that not all members of the pEBP gene family have the same activity in relation to floral control. The Examiner states that Applicants fail to describe a representative number of polynucleotide sequences encoding a LpTFL1 protein of SEQ ID NO: 3 falling within the scope of polynucleotides which hybridize under any conditions to SEQ ID NO: 1 or 2 and have any activity. The Examiner also states that Applicants fail to describe structural features common to member of the claimed genus of polynucleotides.

First of all, claim 65 has been amended to delete references to “fragment, derivative, or homologue” and to delete the “hybridizing” language. Secondly, claim 65 has been amended to change the sequence limitation to 83% identity to the specific recited sequences. Applicants note that sequences with at least 83% identity to SEQ ID NO: 1 or 2, or to the amino acid SEQ ID NO: 3 can be expected to come from a grass species. Applicants also enclose a table and declaration supporting this statement with this amendment. For example, sequences for RCN2, RCN1, Terminal Flower 1, OS12g0152000, OSFDR1, ZCN3 and ZCN3 protein all have at least 83% sequence identity to the LpTFL1 of the invention and contain a YESP(K/R) motif. (See Table enclosed with amendment). The specification highlights that the presence of the motif YESP(K/R), and in particular its serine residue, believed to be important for the superior flowering repressor activity of the LpTFL-1. (See Specification page 12, paragraph 2). Thus, one skilled in the art would understand that the inventors were in possession of a method of reducing or preventing flowering in a plant since the function of the LpTFL-1 protein is disclosed in the present application.

Claims 88 and 94 are directed to method plants belonging to the grass family of Poaceae. The experimental data in the application obtained for two grass species (i.e. perennial ryegrass and red fescue) supports the claimed subject-matter because grass plants of this family are known for their similarity in physiology and regulation of growth. The development of the flowering organs are particularly well known for their interspecies similarity. Thus, a skilled person reading the

specification would immediately envisage that the inventors were in possession of a method of reducing or preventing flowering in a plant of the Poaceae family.

4.2 Enablement

The Examiner rejects claims 65-66 and 68-80 stating that the application does not reasonably provide enablement for any sequence exhibiting less than 100% sequence identity to SEQ ID NO: 1 or 2 or to a polynucleotide encoding a protein exhibiting less than 100% identity to SEQ ID NO: 3 and plant transformation therewith and method of reducing or preventing flowering comprising said polynucleotide. Applicants respectfully traverse the rejection.

To be enabled, a disclosure must teach one skilled in the art to make and use the claimed invention without undue experimentation. Applicants submit that the present invention teaches one skilled in the art how to make sequences with less than 100% sequence identity to SEQ ID NO: 1 or SEQ ID NO: 2 or to a polynucleotide encoding a protein exhibiting less than 100% identity to SEQ ID NO: 3 because it teaches one skilled in the art how to discover functional polypeptides having less than 100% sequence identity. (See specification page 9, line 19 to page 12, line 12). Furthermore, the specification discloses eleven amino acid residues which are essential for a functional protein. (See specification 12, lines 5-6). Additionally the specification discloses preferred promoters and primers. (See specification, page 12, lines 13-23; pages 29, 30, 32, 41, and 46). Thus Applicants submit that the specification provides guidance on how to make and use a protein which prevents flowering in a plant.

Applicants also highlight that it does not require inventive skill for a person to test a nucleotide sequence showing the structural features of claim 65. According to the teachings of the present application, one skilled in the art would have to transform a plant with the sequence (as described on page 30, line 19 to page 31, line 2) and compare the flowering behavior of the transformants with that of the corresponding non-transformed plant (as described in the specification, page 32, line 25 to page 34, line 22). This might be somewhat labor intensive and

might take some time, but it would only require routine work, not undue experimentation. In this situation, Applicants submit the decision of Ex Parte Kubin, 83 USPQ2d 1410, 1410 (Bd. Pat. App. & Int. 2007) compels the finding that because, like Kubin, the specification discloses “how to: 1) make variants of the SEQ ID NOs . . . 2) calculate the percent identity between the SEQ ID NOs . . . and the variant sequence; and 3) test the variant sequence” for functionality, the invention is enabled. Applicants request the Examiner withdraw the rejection.

5. Claim Rejections Under 35 U.S.C. §102(b)

The Examiner rejects claims 65, 71, 73, 75-76, and 79 as being anticipated by Ratcliffe et al. (hereinafter Ratcliffe), taken with evidence of Applicants’ admitted own statement. Applicants respectfully traverse.

The Examiner states that Ratcliffe et al disclose the Arabidopsis TFL1 cDNA sequence having 71% identity to the LPTFL1, operably linked to the CaMV 35S promoter and Arabidopsis transformation therewith, wherein the transformed plants exhibited a delay in flowering as compared to wild-type plants. Applicants respectfully submit that the claims now require at least 83% sequence identity to SEQ ID NO: 1 or 2, or at least 83% identity to a sequence which encodes the amino acid, SEQ ID NO: 3. Thus Ratcliffe does not teach every limitation of the present claims. Applicants respectfully request that the Examiner withdraw the present rejection.

The Examiner rejects claims 65, 71, 73, 75-76, and 79 as being anticipated by Jensen et al. (2001 Plant Physiology 125:1517-1528). Applicants submit that Jensen was published on March 12, 2001, less than one year before the priority date claimed by this application, March 10, 2002. Thus under 35 U.S.C. §102(b) it is not prior art. Applicants attach with this amendment the email correspondence with the Managing Editor of Plant Physiology confirming the date of publication (See Exhibit 1).

6. Claim Rejections Under 35 U.S.C. §103

The Examiner rejects claims 65-66 and 68-80 as unpatentable over Jensen et al.. As discussed above, Jensen is not prior art under 35 U.S.C. §102(b) because it was published less than a year before the priority date of the present application. Thus, under MPEP, Jensen et al. is not prior art under 35 U.S.C. §103. (See MPEP 2141.01).

CONCLUSION

In view of the above remarks, it is believed that claims are allowable.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 

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